RESOURCE MANAGEMENT PLAN

4(d) RULE EVALUATION AND RECOMMENDED DETERMINATION:

"Summer Chum Salmon Conservation Initiative - An Implementation Plan to Recover Summer Chum Salmon in the Hood Canal and Strait of Juan de Fuca -
Harvest Management Component

provided by

Washington Department of Fish and Wildlife and the Point-No-Point Treaty Tribes

April 26, 2001

Attachment 1

RESOURCE MANAGEMENT PLAN 4(d) RULE EVALUATION AND RECOMMENDED DETERMINATION

Title of RMP: Summer Chum Salmon Conservation Initiative - An Implementation Plan to Recover Summer Chum in the Hood Canal and Strait of Juan de Fuca Region

RMP Provided by: Washington Department of Fish and Wildlife (WDFW) and the Point-No-Point Treaty Tribes

Fisheries or Area: Fisheries in Puget Sound, Hood Canal and the Strait of Juan de Fuca potentially impacting listed Hood Canal and Strait of Juan de Fuca summer chum salmon.

ESU: Hood Canal Summer-Run Chum Salmon Evolutionarily Significant Unit

4(d) Rule Limit: Final 4(d) Rule Limit 6.

NMFS Tracking Number: NWR/4d/06/2001/001

Date: April 26, 2001

BACKGROUND

National Marine Fisheries Service (NMFS) issued a final Endangered Species Act (ESA) 4(d) Rule adopting regulations necessary and advisable to conserve Hood Canal summer chum salmon (July 10, 2000; 65 FRN 42422). ESA section 9 take prohibition do not apply to fisheries that are managed in accordance with a state/tribal jointly developed resource management plan (RMP) that is consistent with the ESA 4(d) Rule criteria. The WDFW and Point-No-Point Treaty Tribes [hereafter referred to as "Co-managers"] have provided NMFS a RMP for Puget Sound, Hood Canal and Strait of Juan de Fuca fisheries that will affect listed Hood Canal summer chum salmon (WDFW and PNPTT 2000). The proposed RMP provides the framework through which the state and tribal jurisdiction can jointly manage salmon fisheries while meeting requirements specified under the ESA. The Co-managers have provided the RMP for review and determination by NMFS that it adequately addresses the criteria of Limit 6 of the 4(d) Rule, thereby exempting those fisheries operating consistent with the RMP from ESA section 9 take prohibitions.

EVALUATION

The final ESA 4(d) Rule for the Hood Canal Summer-Run Chum Salmon Evolutionary

Significant Unit (ESU) states that the prohibitions of paragraph (a) of the rule (16 U.S.C. 1531-1543) do not apply to actions taken in compliance with a RMP jointly developed by the States of Washington, Oregon and/or Idaho and the Tribes, provided that the following elements of the rule are met:

> (1) The Secretary of Commerce (Secretary) has determined pursuant to 50 CFR 223.209 [Tribal 4(d) Rule] and the government-to-government processes therein that implementing and enforcing the joint tribal/state plan will not appreciably reduce the likelihood of survival and recovery of affected threatened ESUs.
>
> (2) In making that determination for a RMP, the Secretary has taken comment on how any fishery management plan addresses the criteria in §223.203(b)(4) of the 4(d) rule.

As per the Tribal 4(d) Rule, NMFS consulted regularly with the Point-No-Point Treaty Tribes during the development of the RMP through government-to-government meetings and technical workshops. These occasions provided the opportunity to provide technical assistance, exchange information and discuss what would be needed to provide for the conservation of the listed species and to be consistent with legally enforceable tribal rights and with the Secretary's trust responsibilities to the tribes.

The following is an evaluation of whether the RMP adequately addresses the criteria specified in §223.203(b)(4)(i), as referenced under Limit 6 of the final 4(d) Rule for Hood Canal summer chum salmon (July 10, 2000; 65 FRN 42422).

Limit to Take Prohibitions Criteria and RMP Evaluation

Section 4(i) - Clearly defines its intended scope and area of impact.

This RMP addresses impacts from all proposed non-treaty commercial, recreational and treaty Indian commercial, subsistence and ceremonial salmon fisheries impacting listed Hood Canal summer chum salmon within the waters of the State of Washington.

The goals and objectives outlined within this plan guide the management of Hood Canal summer chum salmon as they transit various management jurisdictions. The RMP's action area encompasses the entire Hood Canal Summer-Run Chum Salmon ESU (Figure 1). The ESU includes all naturally spawned populations of summer chum salmon in Hood Canal and its tributaries as well as populations in Olympic Peninsula rivers between Hood Canal and Dungeness Bay, Washington. All U.S. and Canadian salmon fisheries affecting Hood Canal summer chum salmon are included in the evaluation of fishing-related mortality.

Section 4(i) - Set forth the management objectives and the performance indicators for the plan.

The stated goal of the RMP is to "*.....protect, restore and enhance the productivity, production and diversity of Hood Canal summer chum salmon and their ecosystem to provide surplus production sufficient to allow future directed and incidental harvest of summer chum salmon*."

The RMP establishes a harvest regime referred to as the Base Conservation Regime (BCR). The intent of the BCR is to initiate rebuilding by limiting Hood Canal summer chum salmon fishing mortality to a rate that permits on average, in excess of 91% of the Hood Canal and the Strait of Juan de Fuca summer chum runsize to U.S. waters (as measured by harvest plus escapement), and approximately 89% of the total runsize to return to spawning grounds for the maintenance and rebuilding of self-sustaining populations. During the BCR, no direct take of Hood Canal summer chum salmon is allowed.

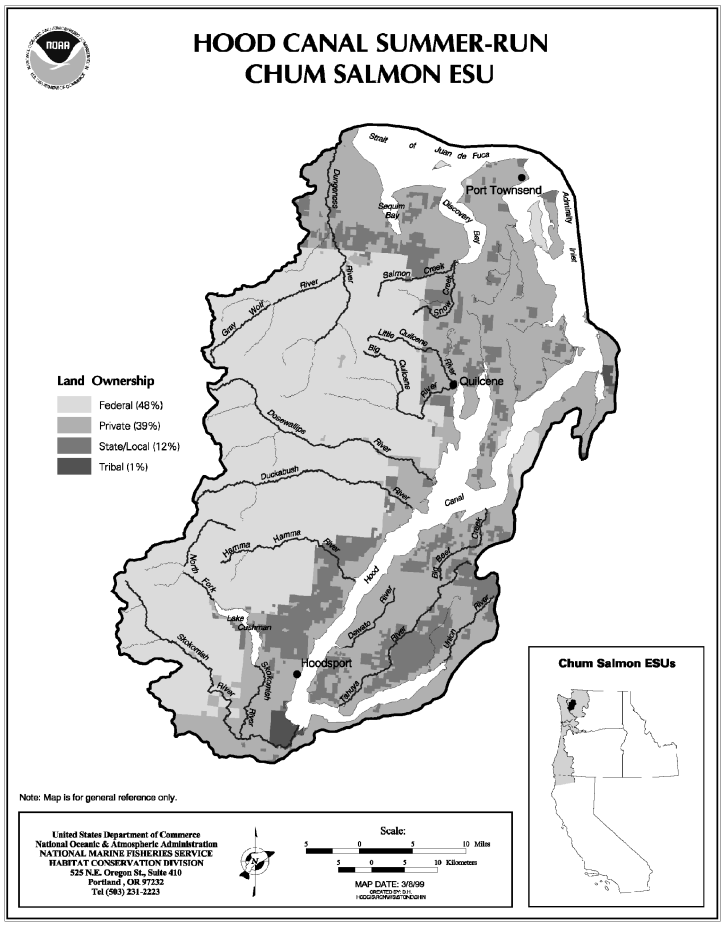


Figure 1. Hood Canal Summer-Run Chum Salmon ESU.

The BCR is comprised of the following elements:

(1) A base set of fishery-specific management actions for fisheries in U.S. and Canadian pre-terminal, Washington terminal and Washington extreme terminal areas (section 3.5.6.1 and Tables 3.29 to 3.34 of the RMP);

(2) Management unit and population abundance and escapement critical thresholds that trigger review of and possible adjustment of the management actions (Table 1);

Table 1. Hood Canal and Strait of Juan de Fuca summer chum management units, populations and Critical Thresholds.

Management Unit	Washington Commercial Catch Area	Populations	Critical Thresholds	
			Abundance	Escapement
Sequim Bay	6B	Jimmmycomelately	<220	<200
Discovery Bay	6B	Snow Creek/Salmon Creek	<790	<720
Dungeness Bay	6D	Dungeness River	Undetermined	
Port Townsend	9	Chimacum Creek	Reintroduction	
Mainstem Hood Canal (Hood Canal Bridge to Ayres Point)	12/12B/12C	Lilliwaup Creek Hamma Hamma R. Duckabush River Dosewallips River	<2,980	<2,660
		Big Beef Creek	Reintroduction	
		Anderson Creek Dewatto Creek Skokomish River Finch Creek	Extinct	
Quilcene/Dabob Bays	12A	Big Quilcene/Little Quilcene	<1,260	<1,110
SE Hood Canal	12D	Union River	<340	<300
		Tahuya River	Extinct	
Total ESU			<5,400	<4,750

(3) Expected fishery specific exploitation rate targets and ranges based on the application of the BCR on the Hood Canal and Strait of Juan de Fuca summer chum salmon management units (Table 2); and

Table 2. Expected Base Conservation Regime incidental exploitation rates and ranges by fishery.

Fishery	Lower Guideline	Expected Average Exploitation Rate	Upper Guideline
Canadian	2.3%	6.3%	8.3%
U.S. pre-terminal	0.5%	2.5%	3.5%
Hood C. terminal	0.5%	2.1%	3.5%
Hood Canal Total [1]	3.3%	10.9%	15.3%
SJF Total [2]	2.8%	8.8%	11.8%

[1] Total of Canadian, U.S. pre-terminal, and Hood Canal terminal exploitation rates.
[2] Total of Canadian and U.S. pre-terminal exploitation rates. There is no terminal area harvest of Strait of Juan de Fuca (SJF) populations.

(4) Overall management performance standards based on natural production against which to

assess success of the harvest strategy and make necessary adjustments (RMP section 3.5.6.3). The actions required depend both on the status of the management unit and the populations within them, with the most conservative controls prevailing.

All state and tribal fisheries will operate in compliance with the BCR, and with any modifications made in response to the critical status for one or more management units or populations. The BCR will remain in place until such time as the Co-managers incorporate the population recovery goals into the management structure. At that time, the Co-managers will discuss with NMFS what terms of the existing plan will continue. Additional harvest regimes may be added to the existing suite of management responses.

The RMP population-specific, performance indicators include:

Abundance - The abundance indicators are: (1) annual post-season estimated abundance must be equal to, or greater than that of the parent brood abundance; (2) the abundance should be stable or increasing and five-year average abundance must be higher than the critical threshold; and (3) annual estimated abundances for each of the identified management units (RMP section 3.5.2) shall not fall below the critical threshold in more than two of five years.

Productivity - The productivity indicators are: (1) five-year mean estimated productivity shall be greater than 1.2 recruits per spawner, and (2) the number of recruits per spawner when management units are at or near critical thresholds must be stable or increasing.

Escapement - Annual natural origin recruit (NOR) escapements shall be: (1) stable or increasing, and (2) five-year average escapements must be higher than the critical thresholds. Information concerning the productivity and productive capacity of the population(s) shall be used to further refine the thresholds themselves.

Management Actions - The harvest management strategies shall be considered successful if progress toward recovery is demonstrated by positive trends in NOR abundance. Strategies and actions directed at management units or populations whose abundance is below their currently estimated critical thresholds, will be considered successful if they reverse the decline in productivity and/or abundance.

These performance indicators measure the combined effects of harvest, hatchery and habitat management actions on the summer chum populations in Hood Canal and the Strait of Juan de Fuca.

Performance indicators also include indicators for monitoring the fisheries. The primary monitoring indicator is the estimates of exploitation rates obtained from the fisheries. Secondary fishery indicators include catch and catch rate, fishing effort, non-landed fishing-related mortality, and catch and escapement composition (size, age, mark rates, etc.). This information

is obtained for recreational fisheries through creel surveys and spot check programs, and annual catch record card data from voluntary CRC returns, and for commercial fisheries from catch sales receipts. The recreational fishery baseline sampling program provides auxiliary data for the Salmon Catch Record Card System: species composition to estimate recreational harvest by species and CPUE (salmon per angler trip) to estimate total effort. The baseline sampling program is geographically stratified among Areas 5 to 13 in Puget Sound.

The RMP requires the Co-managers to maintain fishery sampling at 1998 levels or above (RMP section 3.5.10). Sampling indicators consist of target sample sizes and catch sampling rates for commercial and recreational fisheries stratified by area. In Washington pre-terminal, terminal and extreme terminal area commercial fisheries, a target of 200 chum per stratum, when available[1], will be sampled for biological data such as sex, size, and age structure. For commercial fisheries, the objective is to sample at least 20% of the catch throughout the fishing season. Species and catch composition is obtained by sub-sampling a portion of the catch at commercial fish buyer sites and creel surveys at boat ramps. Genetic Stock Identification (GSI) samples are taken from a limited number of sites. This information is compiled post-season as required in section 3.5.10 of the RMP.

Section 4(i)(A) - Define populations within affected listed ESUs, taking into account spatial and temporal distribution, genetic and phenotypic diversity, and other appropriate identifiably unique biological and life history traits.

In the development of the RMP, Co-managers reviewed and updated the summer chum salmon population listing and status using the protocols established by WDFW and treaty tribes in the 1992 Salmon and Steelhead Population Inventory (SASSI) (WDF et al. 1993). Populations were identified based on their degree of reproductive and genetic isolation (see Appendix A1.5 of RMP), and rating the status of populations into the general categories of healthy, depressed, critical, extinct, and unknown. The Co-manager's review produced a list of 16 summer chum populations (RMP section 1.7.2). Of the 16 populations, seven were identified as being recently extinct (Table 3). The stock assessment indicated that summer chum also return to the Dungeness River, but the magnitude of the return was unknown.

[1] The low catch, and non-retention requirements will make it difficult it achieve this criterion in many situations.

Table 3. Summary of Hood Canal and the Strait of Juan de Fuca native summer chum salmon populations, including existing and recently extinct populations and population origin.

Population	Status	Population	Status
Union	Healthy	Dungeness	Unknown
Hamma Hamma	Depressed	Big Beef	Extinct
Duckabush	Depressed	Anderson	Extinct
Dosewallips	Depressed	Dewatto	Extinct
Big and Little		Tahuya	Extinct
Quilcene	Depressed	Skokomish	Extinct
Snow/Salmon		Finch	Extinct
Creek	Critical	Chimacum	Extinct
Lilliwaup	Critical		
Jimmycomelately	Critical		

The identified extant populations were grouped into five units for management purposes (Table 4). All of the management units contain only one population except for the Mainstem Hood Canal Management Unit. Unlike the other management units, the Mainstem Hood Canal Management Unit covers an area with multiple watersheds separated by a significant distance, and each population corresponds with an independent stream draining into Hood Canal.

The Mainstem Hood Canal populations were combined into a single management unit because: (1) there is insufficient confidence in harvest and run size information to accurately manage each population separately; (2) while there appear to be some genetic differences between populations, the consistency and significance of these differences has not been demonstrated, and all of these populations appear to have similar life history characteristics; and (3) they all drain into a single major terminal fishing area and none have discrete terminal marine areas where they could be harvested independently.

The RMP states that these population designations are preliminary and may be revised based on additional information. The management units proposed by the Co-managers reflect the practical and biological limitations on managing the fisheries.

Fisheries which impact Hood Canal summer chum salmon may also impact listed Puget Sound chinook salmon. Impacts to this ESU are addressed in another RMP developed by the State of Washington and Puget Sound Treaty Tribes and is currently under evaluation by NMFS for consistency with Limit 6 (pers. com. Susan Bishop, NMFS, February 20, 2001). Other listed ESUs transiting Puget Sound areas are either not affected by the fisheries, included in the RMP or fishing-related mortality will be addressed in other RMPs, FMEPs, or section 7 consultations. These listed ESUs include Snake River steelhead, summer chinook, fall chinook, and sockeye salmon, Upper Columbia steelhead, Middle Columbia steelhead, Upper Willamette steelhead and chinook, Lower Columbia chinook and steelhead, and Columbia River chum salmon. Fishing-related mortality on these ESUs have also been addressed in previous ESA section 7

consultations (NMFS 1999, NMFS 2000c).

Section 4(i)(B) - Utilize the concepts of ``viable'' and ``critical'' salmonid population thresholds, consistent with the concepts contained in the technical document entitled Viable Salmonid Populations (NMFS 2000a).

The regulations in the ESA 4(d) Rule require the RMP to use the concepts of "viable" and "critical" thresholds in a manner so that fishery management actions; (1) recognize significant differences in risk associated with viable and critical population threshold states, and (2) respond accordingly to minimize long-term risks to population persistence.

The RMP established critical thresholds for the five management units (Table 4) and escapement distribution flags for the populations within the Mainstem Hood Canal Management Unit. These critical thresholds were derived prior to the availability of the paper on Viable Salmonid Populations (NMFS 2000b), but meet or exceed the Viable Salmonid Populations (VSP) guidelines, and are generally conservative when compared to the size of the populations historically (NMFS 2000a). Escapement Distribution Flags (EDF) and minimum escapement "flags" detect significant deviations from the expected distribution of escapement among the Mainstem Hood Canal Management Unit's populations, and assist in determining when an individual population's escapements falls below a critical level. The critical thresholds and the EDFs work together to ensure that a flag will be raised whenever the Hood Canal Mainstem Management Unit, or the populations within it, experience severe abundance or escapement problems.

Available data is currently insufficient to develop viable thresholds. The Co-managers are developing interim recovery goals for Hood Canal and Strait of Juan de Fuca summer chum salmon. The Co-managers are committed to finalizing the goals by the first five-year plan review, to be completed in February 2005 (pers. com. Nick Lampsakis, Point-No-Point Treaty Council, February 20, 2001, and with Susan Bishop, NMFS, February 21, 2001). Information provided by the Puget Sound and Olympic Peninsula Technical Recovery Team (TRT) will be considered in the development of these goals. In the meantime, the conservatism of the proposed regime is expected to result in a positive trend toward recovery, even if the goal itself has not yet been established. As mentioned earlier, the performance indicators require escapements to be stable or increasing, and replacement rates greater than or equal to 1.0. Escapements are evaluated in terms of NORs.

The harvest strategy specified in the RMP does take into account the different risks facing a population depending on its status (i.e. below critical or above critical threshold). The Co-managers will investigate any additional harvest management measures (RMP section 3.6.1), which may be necessary to assist in restoring the management unit or population above the critical threshold if: (1) a management unit should fall below its critical threshold in the previous year; (2) a management unit is forecast to fall below its critical threshold in the upcoming year;

(3) a management unit is below its critical threshold in the parent brood years; or (4) if a population fails to meet its Critical Escapement Distribution Flag or Minimum Escapement Flag in the previous return year. The next section in this document, Section 4(i)(C), will describe in more detail the Co-manager's response to a population which is below its critical threshold.

NMFS' (2000a) VSP document describes four key parameters for evaluating the status of salmonid populations. These parameters are: (1) population size (abundance); (2) population growth rate (productivity); (3) spatial structure; and (4) diversity. Below is an evaluation of how the RMP addresses the VSP parameters for the Hood Canal summer chum salmon.

(1) Population Size

Critical thresholds or minimum escapement flags were established for each extant population in the ESU (Table 4) and were calculated for each population in the same way (RMP section 3.52 and Appendix 1.5 of RMP). The critical thresholds are based on the lowest abundance observed from 1974 to 1998 which produced a positive observed recruitment, plus a buffer of 25% of the difference between the highest and lowest abundances observed. The buffer was added to take into account management and forecast uncertainties, and environmental variation.

The EDFs were computed in the following manner. The average proportional contribution of each population to the Mainstem Hood Canal Management Unit was calculated for the period of 1974 through 1980. Then, for each population, one standard deviation was subtracted from the average contributed proportion to arrive at the value that would serve as the escapement distribution flag for that population. The years 1974 through 1980 were used in the above computation because that was a period of relatively high abundance prior to the decline of the 1980s, and there was relatively stable distribution of escapements among the populations within the Hood Canal Mainstem Management Unit. Setting the flag one standard deviation below the average proportion of escapement is expected to provide adequate detection of significant deviation from the historical distribution pattern. The minimum escapement flags were calculated by simply multiplying the above described average escapement proportions for each population by the critical escapement threshold for the Mainstem Hood Canal Management Unit.

Table 4. Critical thresholds for Hood Canal and Strait of Juan de Fuca Summer Chum Salmon.

Management Unit	Contributing Population(s)	Critical Escapement Threshold (Minimum Esc. Flag)	Critical Abundance Thresholds
Sequim Bay	Jimmycomelately Creek	200	220
Discovery Bay	Snow Creek/ Salmon Creek	720	930
Mainstem Hood Canal (Hood Canal Bridge to Ayres Point)	Lilliwaup River Hamma Hamma River Duckabush River Dosewallips River **Total**	(182) (1,042) (700) (736) **2,660**	**3,980**
Ouilcene Bay Dabob Bay	Big Quilcene River/ Little Quilcene River	1,110	1,260
Southeast Hood Canal	Union River	300	340
Total		4,750	5,400

The Hood Canal Summer-Run Chum Salmon ESU has two geographically distinct regions: Hood Canal and the Strait of Juan de Fuca. Although the populations all share similar life history traits, the summer chum populations in the two regions are affected by different environmental and harvest impacts and display varying survival patterns and stock status trends.

In the Hood Canal region, summer chum are currently found in the Dosewallips, Duckabush, Hamma Hamma, Lilliwaup, Big and Little Quilcene, and Union rivers. A few chum salmon have been observed in other systems during the summer migration period, but these observations are sporadic and are probably strays from other areas. Although abundance was high in the late 1970's, abundance for most Hood Canal summer chum salmon populations declined rapidly beginning in 1979, and has remained at depressed levels. The terminal run size for the Hood Canal summer chum populations averaged 28,971 salmon during the 1974 to 1978 period, declining to an average of 4,132 salmon during 1979 to 1993 period. Abundance during the 1995 to 2000 period improved, averaging 8,724 fish. However, much of the increase in abundance can be attributed to a supplementation program for the Big/Little Quilcene River summer chum population which was initiated in 1992. Escapements in the Union River have been stable or increasing (1995 to 2000 average of 448 fish) relative to historical levels (1974 to 1978 average of 72 fish). Escapements to the Dosewallip and Duckabush rivers have been generally above critical threshold levels, but are highly variable. Dosewallips and Duckabush river escapements have averaged 1,960 and 789 salmon, respectively, since 1994, compared with 1974 to 1978 average escapements of 2,846 and 3,254 salmon, respectively. Escapements in the

Hamma Hamma River and particularly in the Lilliwaup River have been generally below critical escapement threshold levels in recent years, for the 1995 to 2000 period these systems averaged 306 and 23 fish, respectively.

Supplementation programs were instituted in 1992 for the Big/Little Quilcene and Lilliwaup rivers due to the assessment of high risk of extinction for these populations. A supplementation program for the Hamma Hamma River, rated at moderate risk of extinction in the RMP, was implemented in 1997. The Quilcene River program has been quite successful at increasing the number of returning adults. The programs in the Hamma Hamma and Lilliwaup rivers have been hampered by an inability to collect sufficient broodstock. A re-introduction program was also started in Big Beef Creek using the Quilcene River population. It is too early to assess the success of the Big Beef Creek supplementation program. Other re-introduction programs may be initiated in the future, but will depend on the development of additional broodstock sources to promote stock diversity and not depend solely on the Quilcene River population.

In the Strait of Juan de Fuca, summer chum populations are found in Snow/Salmon, and Jimmycomelately creeks and the Dungeness River. The Snow and Salmon creeks are treated as a single population complex. A supplementation program was initiated in the Snow/Salmon creek system in 1992, and in brood year 1996, a reintroduction program was started in Chimacum Creek using Snow/Salmon creek summer chum as the donor broodstock. During the falls of 1999 and 2000, about 50 summer chum returned each year to spawn. This was the first natural spawning of summer chum in Chimacum Creek since the mid-1980's. The terminal abundance of summer chum in the Strait of Juan de Fuca region began to decline in 1989, a decade after the decline observed for summer chum in Hood Canal. Terminal abundance declined from an average of 1,923 salmon for the 1974 to 1988 period, to a average of 477 salmon during 1989 to 1994 period. During the most recent five-year period (1995 to 2000), the average for the region has increased to 758 salmon. However, much of the increase may be contributed to the supplementation program in the Snow/Salmon creek system. Since 1989, escapements into Jimmycomelately Creek have been poor, with less than 100 spawners in the last three years, compared with the 1974 to 1988 average of 475 fish. There are no systematic surveys for summer chum salmon in the Dungeness River. However, their presence is routinely noted during escapement surveys for other species. The status of the summer chum population in the Dungeness River is therefore unknown.

Guidance from the VSP paper suggests that effective population sizes of less than 500 to 5,000 per generation are at increased risk (NMFS 2000a). The population size range per generation was converted to an annual spawner abundance range of 139 to 1,389 by dividing by 3.6, which is the approximate generation length of Hood Canal summer chum salmon. Where the critical thresholds fall within these ranges depend on the characteristics of the populations themselves.

The critical thresholds for the populations within the Hood Canal Summer-Run Chum Salmon ESU are generally conservative for the size of the populations. Escapements in more than half of

them averaged less than 1,500 historically and all averaged less than 5,500. The critical thresholds are consistent with the VSP guidelines, but more importantly are based on low levels which have generated a positive spawner replacement ratio. The low BCR exploitation rate will return approximately 90% or more of the recruitment, on average, to the spawning grounds. Until viable thresholds are identified, the plan is expected to produce stable or increasing trends in escapement and abundance.

A habitat assessment, conducted as part of the Summer Chum Salmon Conservation Initiative (WDFW and PNPTT 2000), concluded that channel, riparian forest and sub-estuarine conditions were moderately to severely degraded in all the watersheds due to a history of logging, road building, rural development, agriculture, water withdrawal, and channel manipulations throughout the ESU. Improvement in habitat conditions will be essential for successful recovery of summer chum salmon in the ESU.

(2) Population Growth Rate

Productivity is driven by habitat quality and reproductive fitness, not by fishery actions. However, harvest management objectives must be appropriate to the habitat capacity and productivity experienced by the individual populations. The BCR anticipates an average exploitation rate of 10.9% for fish returning to the Hood Canal region and 8.8% exploitation rate for fish returning to the Strait of Juan de Fuca region (ranging from 3% to 15%). At these exploitation rates, spawner replacement is assured if the average recruit-per-spawner ratio is at least 1.2:1. Therefore, the RMP establishes an interim productivity objective of 1.2:1, until better information is available. This would result in a positive replacement rate, after taking into account the anticipated incidental harvest. Trends in escapement will be included in the annual and five-year plan reviews to evaluate whether this positive trend towards recovery is occurring.

Because of the multi-brood life history pattern of summer chum salmon, any direct measures of their productivity necessarily depends on the availability of reliable age data. Previously collected age information for Hood Canal summer chum salmon are not of sufficient quality to meet this need. Therefore, there are no estimates of productivity for the populations in the Hood Canal Summer-Run Chum Salmon ESU. The collection of appropriate age data for deriving survival rates is a high priority and is imperative to measure progress toward recovery. Age data are now being collected from fish returning to the National Fish Hatchery on the Big Quilcene River (see Appendix Table 1.2 of RMP) and to the Salmon Creek weir. Carcasses are sampled for marks and scales or otoliths to determine age structure where possible. Age data collection should be expanded to other areas as part of escapement assessment. The Co-managers have committed to seeking funds for research to (1) assess of survival rates to recruitment by age; and (2) assess of population productivity and productive capacity (RMP section 3.5.12).

While the BCR is in place, forecasts for individual management units will be constrained by the assumption that the recruit/spawner ratio from parental brood escapements below the critical

threshold, is no greater than 1.2:1. This constrains the forecast to be within the assumptions used in the development of the BCR, minimizes the effects of forecast and modeling error, and ensures that the regime remains conservative until predictions of sufficient abundance are confirmed. The Co-managers are in the process of developing management unit specific recovery goals for productivity expressed as spawner to smolt survival rates and adult recruits per spawner. The Co-managers have committed to completing this work by the first five-year plan review.

(3) Spatial Structure

It is possible for fisheries to affect the spatial structure of a population and/or ESU. For example, a fishery could target a certain portion of the run, which may result in a substantial decrease in the number of spawners destined to a particular spawning location or population through time. The early portion of a salmon run may be the only fish that migrate to a particular portion of the drainage. If the fishery only occurred on the early portion of the run, the spawning distribution of a population may change. However, the exploitation rates in the RMP are so low that it is doubtful that any one segment of the run would be impacted more significantly than any other segment. The BCR anticipates an average of 10.9% exploitation rate on Hood Canal populations (8.8% exploitation rate of Strait of Juan de Fuca populations) which is distributed throughout the return migration timing, and over a broad geographic area: Northern British Columbia to South Puget Sound. In addition, spawning takes place in a relatively limited area. Most spawning occurs in the lower one to two miles of stream. The RMP is unlikely to affect the spatial structure of the ESU.

In terminal areas where summer chum salmon are caught incidentally in fisheries directed on other species, harvest occurs on either end of the summer chum salmon run timing. There is currently no information to indicate that this is having deleterious effects to certain segments of the populations. If, however, deleterious effects are detected, the RMP commits Co-managers to take appropriate measures. Spawning ground surveys are currently conducted in established index areas from mid-August through late October in systems comprising the known spawning distribution of Hood Canal summer chum salmon populations. Spawning ground surveys cover 90% or more of the current temporal and spatial distribution of summer chum.

The Co-managers have concluded that the cumulative loss of historic habitat has contributed to the decline of summer chum salmon. A habitat assessment, conducted as part of the Summer Chum Salmon Conservation Initiative for Hood Canal and Strait of Juan de Fuca summer chum populations (see Appendix Report 3.6 of RMP), concluded that channel, riparian forest and sub-estuarine conditions were moderately to severely degraded in all the watersheds due to a history of logging, road building, rural development, agriculture, water withdrawal, and channel manipulations throughout the ESU. Habitat restoration will be necessary to address any spatial structure deficiencies within the ESU.

(4) Diversity

As stated above, the fisheries in the RMP will likely reduce any potential effects of within- and among- population diversity of the ESU. The BCR is designed to allow on average, in excess of 91% of the Hood Canal and the Strait of Juan de Fuca summer chum runsize (harvest and escapement) to U.S. waters, and approximately 89% of the total runsize of the Hood Canal summer chum salmon run to reach the spawning grounds (RMP section 3.5.8). The intent of the BCR is to initiate rebuilding by providing incremental increases in Hood Canal summer chum salmon escapement over time while allowing a limited opportunity to harvest other species. Fisheries are managed to achieve the exploitation rate and so that each population meets or exceeds its critical abundance thresholds. These management units and their associated populations represent the breadth of geographic distribution in the ESU. The fisheries will not likely impact one portion of the run more than any other.

The RMP represents a major change in management for summer chum salmon in Hood Canal and the Strait of Juan de Fuca. Prior to 1992, fisheries were not managed to achieve management objectives specific to summer chum salmon. Summer chum were harvested incidentally in fisheries directed at other species. Therefore, the level of mortality and resulting escapement was driven by the abundance of these other species and the timing of fisheries directed on them. The RMP includes fishery-specific exploitation rates and natural escapement objectives for all extant summer chum populations in Hood Canal and the Strait of Juan de Fuca. Fisheries will be managed for these objectives regardless of the abundance of other species.

Diversity parameters are most likely influenced by habitat and hatcheries for most Hood Canal chum salmon populations. Juvenile salmonids produced by hatcheries in the region have a potential to adversely affect listed summer chum salmon juveniles through competition and/or predation in freshwater and near-shore marine areas where the hatchery fish interact with emigrating summer chum (WDF et al. 1993, Johnson et al. 1997, Tynan 1998). Artificial production programs and the issues involved with them are discussed in detail in section 3.3 of the Summer Chum Salmon Conservation Initiative (WDFW and PNPTT 2000). Hatchery and Genetic Management Plans (HGMPs) are under development for all Puget Sound hatchery facilities impacting listed Hood Canal summer chum salmon, based primarily on this work. NMFS is evaluating the potential for adverse competitive and predation effects in a near final biological opinion addressing proposed hatchery programs with the Hood Canal summer chum salmon ESU (pending ESA section 7 consultation with federal and state Co-mangers of Hood Canal Summer Chum Salmon Artificial Propagation Programs). In that consultation, the Co-managers are proposing to apply controls on hatchery produced salmonid releases to minimize deleterious interactions between artificially produced fish and listed summer chum juveniles.

Section 4(i)(C) - Set escapement objectives or maximum exploitation rates for each management unit or population based on its status and on a harvest program that assures that those rates or objectives are not exceeded.

The proposed management actions effect all salmon fisheries which impact listed Hood Canal summer chum salmon, including Canadian fisheries. The results of these management actions are designed to produce exploitation rates on the average of 10.9%, with a range of 3.3 to 15.3%, on summer chum salmon bound for the Hood Canal and 8.8% total, with a range of 2.8 to 11.8%, on Strait of Juan de Fuca populations. Although in any one year, fisheries may be managed for exploitation rates lower than this range, the upper end of the exploitation rate ranges may not be exceeded. Exploitation rates are defined for each of three fishery aggregates (Table 2). Because of the lack of population specific harvest information in individual fisheries, these exploitation rates are applied to all management units.

The Quilcene/Dabob Bay Management Unit will be managed for a stepped exploitation rate based on escapement thresholds. The Quilcene/Dabob Bay fishery consists primarily of the use of hook and line, gillnet, and beach seine gear. Management relies on a stepped fishing schedule based on an in-season assessment of escapement. Fishing with gillnets is not allowed for escapements projected to be less than 1,500 fish. One day per week of fishing with gillnet gear is allowed for escapements projected to be between 1,500 and 2,500 fish. At escapements above 2,500 fish, additional fishing may be allowed to access the coho salmon run.

From 1974 to 1998, harvest impacts on the Hood Canal Summer-Run Chum Salmon ESU ranged from 2.7 to 81.3% (1.5 to 43.2% in Canadian fisheries, 0.4% to 10.1% in Washington pre-terminal fisheries and 0.3 to 51.1% in terminal fisheries) (Table 3.26 in RMP). The terminal fisheries occurred only in Hood Canal region and therefore did not affect the Strait of Juan de Fuca component of the ESU. From 1974 to 1998, Southern U.S. exploitation rates averaged 4% and 26% on the Strait of Juan de Fuca and Hood Canal components respectively (Table 3.26 in RMP). Beginning in 1992, fisheries were reduced significantly to protect summer chum, commingled coho and chinook salmon populations. Since 1992, exploitation rates on the Strait of Juan de Fuca and Hood Canal components have averaged 1.8% and 3.1%, respectively.

The RMP approach to establishing management objectives is risk averse and progressive, representing significant improvements from past management practices. The management units represent the entire range of life history types and geographic distribution that comprise the Hood Canal Summer-Run Chum Salmon ESU.

If exploitation rates deviate from expectations, the Co-managers will take the following management actions to bring exploitation rates within the BCR range as soon as those deviations are detected. If any management unit falls below its critical abundance or escapement threshold, or if an escapement distribution flag is triggered for a Mainstem Hood Canal Management Unit population, the Co-managers will: (1) promptly identify any emergency actions that can be taken

immediately to respond to the critical condition. These actions include delayed or truncated fishery openings for other salmonid species, net length and mesh size restrictions, limited soak times for gillnets, non-retention of chum salmon, and time, area or gear restrictions[2]; and (2) within six months, prepare an assessment of the factors resulting in this failure and provide comprehensive recommended actions and modifications to the plan to promptly restore the management unit or population to non-critical status.

The assessment will also include an examination of population extinction risk, as described in section 1.7.4 of the RMP, and utilized in section 3.2, to assist in developing recommended actions. If in-season conditions deviate significantly from the preseason expectations, the Co-managers will meet prior to implementation of additional fisheries to reach agreement on an appropriate management strategy. In particular, the most depressed populations must be monitored closely to evaluate whether they are continuing to decline. In ongoing consultation with NMFS, if the depressed populations continue to decline, further management actions by the Co-managers must be considered, but at these low exploitation rates, it is uncertain whether further harvest restrictions would provide any significant benefit to the population.

Co-managers authority to implement management actions is limited for fisheries outside the jurisdiction of the WDFW and tribal managers, therefore, successful implementation of the BCR also requires the U.S. government to actively pursue the RMP recommendations for Canadian fisheries with Canada. In 1999, Canada agreed to include most of the BCR recommended actions for Canada in the 1999 chum salmon Pacific Salmon Treaty (PST) agreement, which will be in effect through 2010. Future coordination with Canadian managers concerning Canadian fisheries which impact listed Hood Canal summer chum salmon will continue to be important in achieving the desired exploitation rates.

The use of exploitation rates rather than fixed escapement goals for Hood Canal summer chum salmon populations will allow the possibility for larger escapement. Rather than always harvesting down to a escapement objective when abundance is high, a portion of the run size is always allocated to escapement regardless of run size. Most importantly, an exploitation rate approach is more resilient to data uncertainty and environmental variability than a fixed goal approach.

Section 4(i)(D) - Display a biologically based rationale demonstrating that the harvest management strategy will not appreciably reduce the likelihood of survival and recovery of the ESU in the wild, over the entire period of time the proposed harvest management strategy affects the population, including effects reasonably certain to occur after the proposed actions cease.

[2] There are no fisheries directed at summer chum under the BCR.

The implementation of RMP preserves the existing diversity and spatial structure of natural populations within Puget Sound. This management approach further enhances the probability of survival and recovery of Hood Canal summer chum by being responsive to low population status. Minimum spawning escapement levels have been established for each management unit and its associated populations. These low abundance thresholds are established to safeguard against declines to the point of population instability.

The RMP represents significant changes in the management approach and reduction in mortality for summer chum in Hood Canal and the Strait of Juan de Fuca. Prior to 1992, fisheries were not managed to achieve management objectives specific to summer chum salmon. The RMP includes fishery-specific exploitation rates and natural escapement objectives for all extant summer chum populations in Hood Canal and the Strait of Juan de Fuca. Fisheries will be managed for these objectives regardless of the abundance of other species. These strategies are expected to result in significant reductions from total exploitation levels estimated for the period from the 1980s to the early 1990s, which were the result of fisheries targeted at other species. The harvest management portion of the RMP, by establishing annual fishing regimes for U.S. and Canadian pre-terminal, and Washington terminal area fisheries, is designed to greatly reduce incidental harvest of summer chum salmon, during fisheries conducted for the harvest of other species. The expected reduction in incidental interceptions, relative to the high rates observed during the 1985 to 1991 period, is approximately 71% for Canadian fisheries, 50% for U.S. pre-terminal, and 93% for Washington terminal area fisheries.

The intent of the BCR is to initiate rebuilding by providing incremental increases in escapement over time, while allowing a limited opportunity to harvest other species. Exploitation rates under the RMP are conservative, passing through to spawning escapement on average, in excess of 91% of the Hood Canal and the Strait of Juan de Fuca summer chum runsize (harvest and escapement) to U.S. waters, and approximately 89% of the total runsize of the run to each management unit. Since 1992, some improvements in escapements have occurred coincident with the implementation of lower exploitation rates. For those populations below their critical escapement thresholds, terminal fisheries have been closed, fisheries on other species have been delayed and chum salmon non-retention has been required in most areas. For example, U.S. harvest on the Strait of Juan de Fuca component of the ESU has been restricted to 0.5 to 3.5%, or less than four fish caught per 100 returning adults. At this very restrictive exploitation rate, harvest should not impede the recovery of the populations.

In a previous biological opinion, NMFS used a simulation model to compare escapements under the RMP exploitation rates with those with no fishing (NMFS 2000b). The simulation used data from 1974 to 1994 which encompassed the observed range of abundances and survival and is prior to the use of supplementation. The results of the simulation show that trends for populations in both regions are not substantially different than if there had been no fishing. The simulation results were also compared with observed baseline abundance when exploitation rates were much higher. Hood Canal escapements, in particular, would have benefitted from the

reduced exploitation rates (Figure 2). Populations would have been above critical escapement threshold levels in most years, and dramatically above the observed values. In those years when abundance fell below critical escapement threshold levels, the results show that fishing would not have been a contributing factor, i.e., the escapement would have fallen below the critical threshold even if fishing mortality had been zero.

Results from the simulation for the Strait of Juan de Fuca indicate that in some years populations would have been depressed even absent all harvest, but that reduced harvest would have allowed for population growth over what was observed in years when the inherent productivity of the system permitted (Figure 3). It is apparent from the model results that the summer chum populations in the Strait of Juan de Fuca region have been constrained more by environmental conditions than by historical harvest effects, as opposed to summer chum populations in the Hood Canal region in which reduced fishing might have made a significant difference to annual escapement, and in long-term population growth. Therefore, the RMP should not appreciably decrease the likelihood of survival and recovery, and should provide significant benefits to escapement in most years.

The simulations conducted for the years 1974 to 1994 provide data on what to reasonably expect once the plan is implemented. The average and upper end of the BCR exploitation rate range were modeled for those years. It is noted that exploitation rates since 1994 have fallen within the range of exploitation rates used in the simulation. The RMP also calls for specific and integrated monitoring programs to maintain and improve population assessment methodologies as well as evaluating the effectiveness of harvest management actions and objectives. The next section of this document, Section 4(i)(E) will address monitoring and plan evaluation issues in more detail.

The RMP describes specific management actions taken to meet the exploitation rates and escapement objectives of the BCR (see Tables 3.29 to 3.34 of the RMP). These actions include closure of summer chum-directed fisheries, delayed or truncated fishery openings for other salmonid species, net length and mesh size restrictions, limited soak times for gillnets, non-retention of chum salmon, and time, area or gear restrictions. If in-season conditions deviate significantly from the preseason expectations, the Co-managers will meet prior to implementation of additional fisheries to reach agreement on an appropriate management strategy.

The RMP is designed to limit fishing mortality to a rate that permits a high proportion of the summer chum salmon run to return to spawning grounds and thus accommodate the maintenance and rebuilding of self-sustaining populations. These harvest management measures in the RMP are designed to apportion harvest impacts between or within management units based on and responsive to population status and individual population characteristics, and to result in a broad distribution of spawners throughout all populations in the Hood Canal and Strait of Juan de Fuca region. The RMP harvest management actions, when coordinated with habitat protection/restoration and supplementation actions, should lead to the maintenance and

restoration of genetic and biological diversity within the Hood Canal and Strait of Juan de Fuca region, and provide for the conservation of the Hood Canal Summer-Run Chum Salmon ESU.

Figure 2. Comparison of summer chum population escapements in Hood Canal resulting from various exploitation rates.

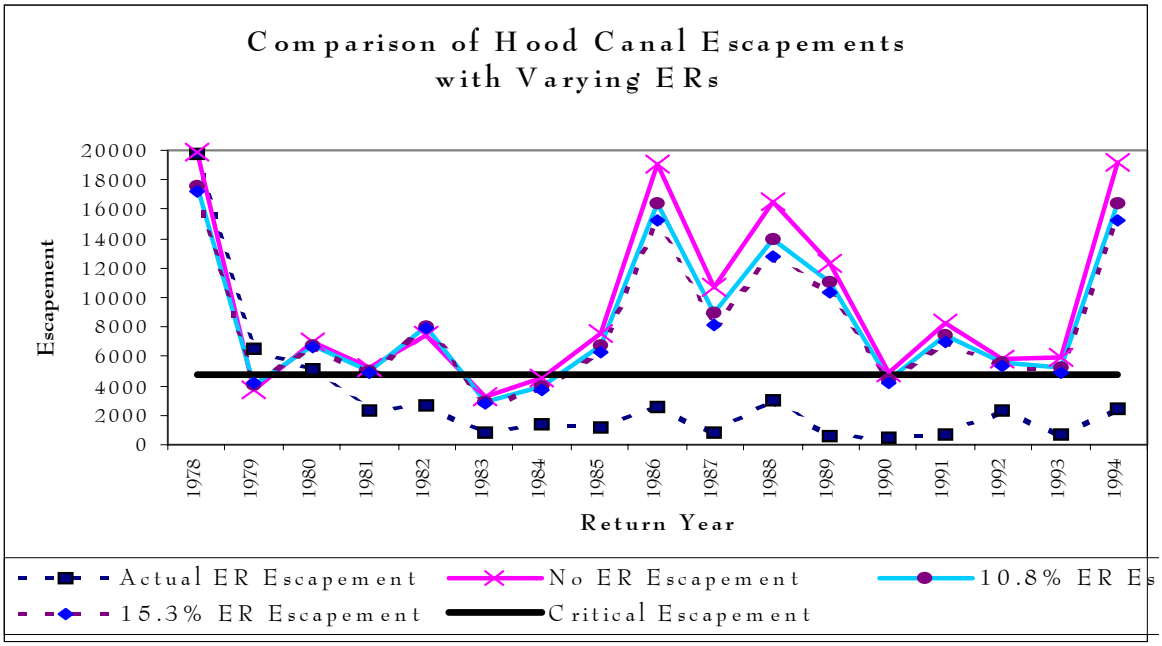
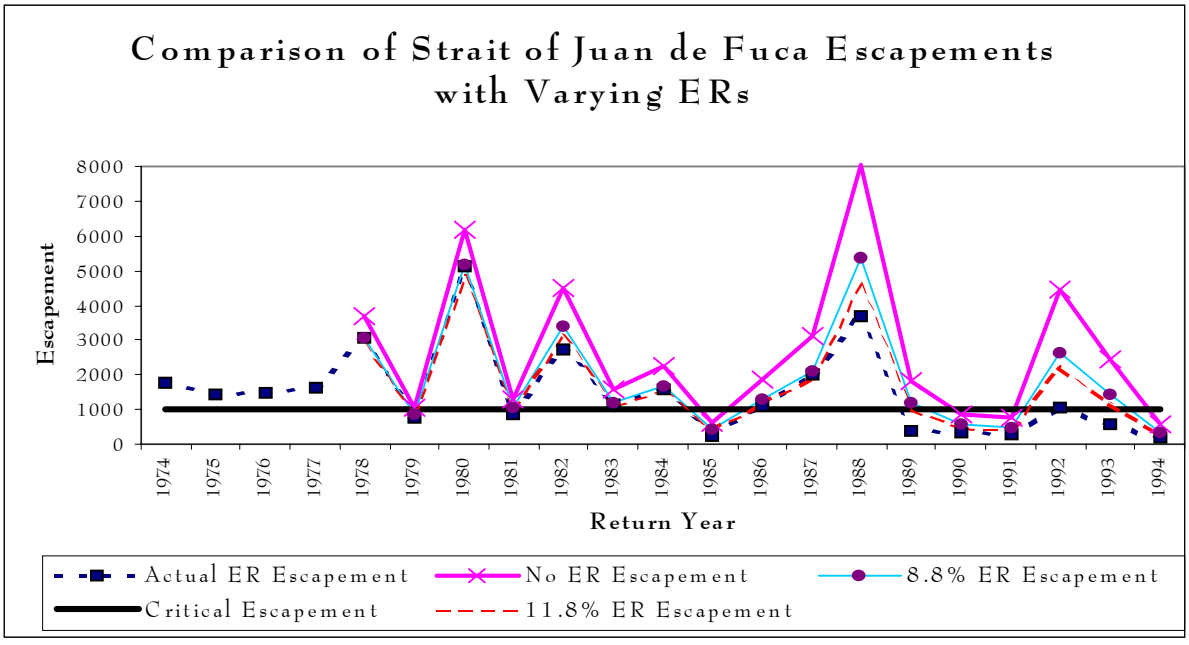


Figure 3. Comparison of summer chum population escapements in the Strait of Juan de Fuca



Section 4(i)(E) - Include effective monitoring and evaluation programs to assess compliance, effectiveness, and parameter validation. *(At a minimum, harvest monitoring programs must collect catch and effort data, information on escapements, and information on biological characteristics, such as age, fecundity, size and sex data, and migration timing.)*

The RMP calls for specific and integrated monitoring programs to maintain and improve population assessment methodologies as well as evaluating the effectiveness of harvest management actions and objectives (RMP section 3.5.10). These programs include: (1) consistent escapement monitoring methods; (2) identification and quantification of harvest contributions; (3) assessment of survival rates to recruitment by age; and (4) assessment of population productivity and productive capacity. Escapement and harvest monitoring form the core elements of the monitoring program. These core elements are stable and Co-managers have committed to continuing these programs at or above current levels. However, current survey and monitoring programs are limited primarily to quantitative monitoring of escapement and harvest. Information gained from the other suggested monitoring activities (as identified in section 3.5.12) would improve management, but additional funding and resources will be required for implementation. The Co-managers have designed the BCR management actions to provide sufficient protection for summer chum populations at the current levels of monitoring. The Co-managers have committed to maintaining the core elements of the monitoring programs, while recognizing that additional monitoring activities are important and are actively seeking funds to support them.

Section 3.5.10 of the RMP describe the monitoring programs currently in place to assess effectiveness of the RMP in achieving the management objectives and to validate the assumptions used in deriving the objectives. This information is used in conjunction with the Performance Indicators (RMP section 3.6.4) to assess effectiveness of the RMP. Catch and effort, and population distribution information is collected from all commercial fisheries through catch sampling and catch sales receipts (fish tickets). In the Hood Canal and Strait of Juan de Fuca extreme terminal and terminal area fisheries, commercial salmon harvests will be sampled annually at a minimum of 20% for species composition to obtain statistically valid estimates of species composition. The same information is collected from recreational fisheries through shore-based sampling, creel surveys and voluntary return of Catch Record Cards (CRC).

Escapement surveys provide information on run timing and population status. Spawning ground surveys will be conducted in established index areas (see Table 3.36 of RMP). In addition to spawner counts, carcasses will be sampled for marks and scales or otoliths will be taken to determine age structure where possible. At a minimum, monitoring will be maintained at 1998 levels. In 1998, spawning ground surveys covered 90% or more of the current temporal and spatial distribution of summer chum.

The performance of fisheries will be assessed annually to determine the extent which catch and fishing effort conform to the quotas, ceilings, or projections that were defined in pre-season

planning for each fishing area and season. This assessment may lead to further evaluation of the effectiveness of fishing regulations, (i.e. time or area constraints, gear restrictions, or bag limits). The causes of significant discrepancies between expected and actual catch and effort will be identified with a view to changing regulatory measures, and methods for projecting catch and fishing effort, to improve their accuracy.

The annual abundance of summer chum salmon returning to each management unit will also be estimated to monitor the status of populations and to assess the accuracy of forecasts. Terminal-area incidental harvest and spawning escapement will provide the earliest hard evidence of a management unit's abundance. Monitoring will also provide information on the number of NORs in supplemented areas. The spawning escapement of each population will be compared to the pre-season expectation, in most cases prior to planning the next fishing season. Assessment of the total annual return requires accurate estimation of escapement and reconstruction of fishing-related mortality. Accounting of the harvest fishing-related mortality and escapement of each management unit will enable the calculation of exploitation rates, which may be compared with the pre-season projections and objectives.

The availability of data, and the schedule for completing each aspect of monitoring harvest management effectiveness, are described in detail in section 3.5.7.1 of the RMP. The tasks involved in monitoring abundance and assessing the performance of annual fishing strategies, are also mandated by the Puget Sound Salmon Management Plan.

Section 4(i)(F) - Provides for evaluating monitoring data and making any revisions of assumptions, management strategies, or objectives that data show are needed will be made.

The RMP also requires a progress report be completed annually, with a more comprehensive review every five years. The annual and five year review processes shall include a review of the level of compliance by the Co-managers, and make any recommendations that may be necessary for improvements in the level of compliance. Compliance certainty shall also be assured through the application of U.S. v Washington rules and procedures. The results of the previous year's post-season report and the preseason forecasts are the basis for determining the current year's harvest strategy. As the result of the annual and five-year reviews, the management strategies will continue to evolve and adapt.

As outlined in section 3.6.2 of the RMP, an Annual Plan Progress Report will be completed by May 31 of each year. The annual progress report will include, but not limited to: (1) an evaluation of the exploitation rates in each of the three fishery aggregates and the Quilcene/Dabob Bays Management Unit escapements relative to the objectives; (2) annual results of research and monitoring projects designed to obtain annual estimates of age-composition; (3) review of the exploitation rate objectives; (4) an analysis of escapements and management performance of the previous year (post-season review), and parental brood escapements; (5) and estimate of landed catch mortality. Commercial fish ticket, ceremonial and

subsistence reporting systems, recreational CRC and creel census reporting systems will be the primary sources of catch information used to assess landed catch mortality; and, (6) a review of the level of compliance by each of the Co-managers, and recommendations as necessary for improvements in the level of compliance, to ensure the successful implementation of the plan.

The RMP also requires a comprehensive review of this plan every five years. This comprehensive review will assess whether progress towards recovery is being achieved and whether the results of monitoring and evaluation studies indicate a need to revise assumptions, strategies and actions. As the populations within the management units are rebuilt, the plan review will assess whether the conservation and recovery criteria are being maintained, as well as incorporating the results of monitoring and evaluation studies. At the time of the review, results from the monitoring and evaluation studies will be used to modify the specific actions and harvest strategies, modify the monitoring and evaluation programs, make recommendations for further research. The review will also take into account information provided from the TRT and other recovery-related planning processes.

The first five-year review will occur in 2004 (to cover the period 1999 to 2003), with a final report completed by February of 2005 (subsequent reviews will be completed every fifth year (i.e., 2010, 2015, etc.). However, this will not constrain the managers from introducing substantive new information for discussion and possible incorporation at any time.

As required by the RMP, genetic stock identification baselines for Hood Canal and Strait of Juan de Fuca summer chum salmon populations will be completed prior to the first Five Year Plan Review. Additionally, Co-managers are committed to establishing recovery goals for each management unit by the first Five Year Plan Review.

The Five Year Plan Review will include: (1) a review of each element of the plan in meeting their specific compliance and effectiveness standards, by management unit and population, since the last review period and since adoption of the plan; (2) an evaluation of management unit and population performance relative to the performance standards; (3) a determination of which strategies and actions and conservation objectives were most effective and least effective and which management unit and populations did or did not see the desired improvement; (4) evaluation of compliance, effectiveness and parameter validation; (5) adjustments to plan elements. Co-managers will incorporate new information from monitoring, evaluation and research studies in making adjustments as prescribed; and, (6) recommendations for plan changes or amendments. This information will be as specific as possible, including the watersheds, river systems, estuaries, management units, populations, programs or projects, and fisheries affected, the type of suggested change and the time frame over which it should be implemented. See sections 3.2 to 3.5 of the RMP for more detail on plan evaluation.

The Co-managers have demonstrated their commitment to adaptive management through the RMP itself, and the implementation of the RMP terms in 1999 and 2000. The RMP incorporates

new information in its revision of population definitions, chum salmon run reconstruction, and design of the management approach.

Section 4(i)(G) - Provides for effective enforcement and education, and coordination among involved jurisdictions.

The annual and five-year review processes of the RMP will include an evaluation of the level of compliance by the Co-managers, and recommendations that may be necessary for improvements in the level of compliance to ensure successful implementation of the RMP. Co-managers will ensure that, at least the 1998 levels of monitoring and on-the-water enforcement of fishing regulations be maintained (RMP section 3.5.9). The WDFW and each tribe is responsible for regulation of harvest in fisheries under its regulatory authority, consistent with the principles and procedures set forth in the Puget Sound Salmon Management Plan.

All fisheries shall be regulated to achieve sharing and production objectives based on four fundamental elements: (1) acceptably accurate determinations as to the appropriate exploitation rate, harvest rate, or numbers of fish available for harvest; (2) the ability to evaluate the effects of specific fishing regulations; (3) a means to monitor fishing activity in a sufficient, timely and accurate fashion; and (4) effective regulation of fisheries to meet objectives for spawning escapement and fishery impacts. The Co-managers maintain a system for transmitting, cross-indexing and storing fishery regulations affecting harvest of salmon. Both the WDFW and the Point-No-Point Treaty Tribes monitor and enforce compliance with these regulations as part of more extensive enforcement programs. The State, Tribal and federal court systems should be sufficient to ensure that enforcement is followed through with appropriate prosecution of violators.

The WDFW and the Point-No-Point Treaty Tribes have direct management authority over fisheries harvesting summer chum salmon in Hood Canal and the Strait of Juan de Fuca and other areas of Puget Sound. The annual Pacific Salmon Commission, Pacific Fisheries Management Council and North of Falcon meetings provide the forums for coordination among other jurisdictions impacting listed Hood Canal summer chum salmon populations. The fishery regimes developed each year as part of these planning forums account for fishery related impacts in all fisheries in the U.S. and Canada, one aspect of which is to ensure that fisheries are consistent with the management objectives and approach described in the RMP.

Both the Pacific Fisheries Management Council (PFMC) and North of Falcon planning processes are open to the public. The PFMC takes public comment and input throughout its development of harvest strategy for the ocean fisheries off Washington, Oregon and California. Representatives from the commercial and recreational fishing constituencies are active participants in the North of Falcon planning process. Public notification of fishery regulations is achieved through press releases, regulation pamphlets, telephone “hotlines”, and federal register notices. The WDFW has recently implemented a more aggressive campaign for increased public

involvement and education through expanded public meetings, and greater access to information through use of the internet.

Section 4(i)(H) - Includes restrictions on resident and anadromous species fisheries that minimize any take of listed species, including time, size, gear, and area restrictions.

The RMP proposes to rebuild by providing incremental increases in escapement over time, while allowing a limited opportunity to harvest other species. The RMP describes specific management actions taken to meet the exploitation rates and escapement objectives of the BCR (see Tables 3.29 to 3.34 of the RMP). These actions include closure of summer chum-directed fisheries, delayed or truncated fishery openings for other salmonid species, net length and mesh size restrictions, limited soak times for gillnets, non-retention of chum salmon, and time, area or gear restrictions. If in-season conditions deviate significantly from the preseason expectations, the Co-managers will meet prior to implementation of additional fisheries to reach agreement on an appropriate management strategy.

Section 4(i)(I) - Is consistent with plans and conditions established within any Federal court proceeding with continuing jurisdiction over tribal harvest allocations.

The RMP has been developed and agreed upon by the WDFW and the Point No Point Treaty Tribes under their authority to Co-manage salmon pursuant to the rules and orders of U.S. v Washington. The plan is consistent with and fulfills the intent of section 13 of the Puget Sound Salmon Management Plan, which calls for the development of comprehensive regional resource management plans for Puget Sound populations of salmon. In addition, the goal, direction, and provisions of the summer chum recovery initiative are consistent with the guidance within the WDFW Wild Salmonid Policy.

Notice of Recommended Determination

As required in (6)(iv) of section 223.203 of the ESA 4(d) Rule for Hood Canal summer chum salmon, the Secretary will publish notice of his determination as to whether the RMP appreciably decreases the likelihood or survival and recovery of affected threatened ESUs, together with a discussion of the biological analysis underlying that determination.

RECOMMENDED DETERMINATION

Sustainable Fisheries Division's recommends a determination that the RMP for Hood Canal and Strait of Juan de Fuca summer chum salmon provided by WDFW and the Point-No-Point Treaty Tribes adequately addresses the criteria established for a RMP under Limit 6 of the 4(d) Rule. As recommended, the take prohibitions of paragraph (a) of the 4(d) Rule would not apply to fisheries conducted in accordance with the Hood Canal and Strait of Juan de Fuca summer chum salmon RMP.

Literature Cited

Johnson, O.W., W.S. Grant, R.G. Kope, K. Neely, F.W. Waknitz, and R.S. Waples. 1997. Status review of chum salmon from Washington, Oregon, and California. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-NWFSC-32, NMFS NW Sci. Center, U.S. Dept. Commer. Nat. Marine Fish. Serv., Seattle, WA. 280 p.

National Marine Fisheries Service (NMFS). 1999. Endangered Species Act Section 7 consultation. Biological opinion on the approval of the Pacific Salmon Treaty by the U.S. Department of State and Management of the Southeast Alaska Salmon Fisheries subject to the Pacific Salmon Treaty. Dated November, 18, 1999.

NMFS. 2000a. Viable salmon populations and the recovery of evolutionarily significant units. NOAA Technical Memorandum NMFS-NWFSC-42.

NMFS. 2000b. Effects of Pacific Coast Ocean and Puget Sound Salmon Fisheries During the 2000-2001 Annual Regulatory Cycle, Biological Opinion. U.S. Dept. Commer. Nat. Marine Fish. Serv., Seattle, WA. 96 p.

NMFS. 2000c. Endangered Species Act – Reinitiated Section 7 Consultation. Biological Opinion. Effects of Pacific Coast Ocean and Puget Sound Salmon Fisheries During the 2000-2001 Annual Regulatory Cycle. National Marine Fisheries Service, Protected Resources Division. p. 96

Tynan, T.J. 1998. Characterization of WDFW and tribal cooperative hatchery salmonid production in the Hood Canal and eastern Strait of Juan de Fuca regions. Vol. II - Biological assessment of WDFW hatchery program effects on the status of Hood Canal and Strait of Juan de Fuca region summer chum salmon populations (unpublished). Wash. Dept. Fish. and Wild., Olympia, WA. 104 p.

WDF (Washington Department of Fisheries), Washington Department of Wildlife, and Western Washington Treaty Indian Tribes. 1993. 1992 Washington State Salmon and Steelhead Stock Inventory. Wash. Dept. Fish and Wild., Olympia, WA. 212 p.

Washington Department of Fish and Wildlife. 2000. Summer Chum Salmon Conservation Initiative - An Implementation Plan to Recover Summer Chum in the Hood Canal and Strait of Juan de Fuca Region. J. Ames, G. Graves and C. Weller [eds.]. Wash. Dept. Fish and Wild., Olympia, WA. www.wa.gov/wdfw . 382 p + Appendices.